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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/695,396

10/29/2003

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EXAMINER

CHUNG, DAVID Y

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/695,396	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> DAVID Y. CHUNG	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-35 is/are pending in the application.
- 4a) Of the above claim(s) 18-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 9-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**1. Claims 1, 3, 4, 6-8 and 14-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagawa et al. (US 6,909,415) in view of Yoon (US 6,005,542).**

As to claims 1, 3 and 4, Kumagawa discloses an in-plane switching (IPS) mode liquid crystal display device in figures 19 and 20. Note in figure 20, the gate lines 1, data lines 2, thin film transistors 3, common electrodes 4, and pixel electrodes 5. The common electrode 4 comprises a storage line formed parallel to the gate lines. The thin film transistors are alternately positioned along lower and upper side pixel regions adjacent to corresponding gate lines. The pixel electrodes are formed integrally with the drain electrodes of the thin film transistors.

Kumagawa does not disclose that a high-level first common voltage and a low-level second common voltage are alternatively supplied to adjacent storage lines. Yoon teaches that if a voltage is applied to a liquid crystal pixel in only one way, degradation of the liquid crystal is accelerated. In order to avoid this degradation, a driving method such as line inversion is used. See column 1, lines 45-60. Line inversion includes the

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steps of applying a common voltage, varied between low and high common voltage levels, to a second terminal of the pixel. See column 5, lines 29-45. It would have been obvious to one of ordinary skill in the art at the time of invention to supply a high-level first common voltage and a low-level second common voltage adjacent storage lines in order to prevent degradation of the liquid crystal.

As to claim 6, because the drain electrode is formed integrally with pixel electrode 5, it is considered to overlap the storage line of common electrode 4, forming a storage capacitor.

As to claim 7, because the branches of the common electrode 4 are formed integrally with the storage line portion, they can be considered part of the storage line. Each pixel region comprises two branch portions of the common electrode formed near the edges and parallel to the adjacent data lines. These branch portions can be considered to be formed along a circumferential portion of the pixel region.

As to claim 8, the storage line portion of the common electrode extends parallel to the gate lines and is elongated to adjacent pixel regions by crossing under the data line along one side of the pixel region.

As to claims 14 and 15, the common electrode 4 in figure 20 appears to be formed in the same layer and of the same material as the gate line 1.

As to claims 16 and 17, the pixel electrode 5 is formed substantially in a center portion of the pixel electrode and is substantially parallel with the data line 2. The common electrode comprises branches which are formed near the edges of the pixel region and can be considered to be formed along a circumferential portion.

**2. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagawa et al. (US 6,909,415) in view of Yoon (US 6,005,542) and in further view of Shirahashi et al. (US 5,285,301).**

Kumagawa does not disclose a dummy line disposed along the lowermost portion of the horizontal gate line or the uppermost portion of the horizontal gate line. Shirahashi discloses dummy gate lines DGL in figures 1 and 15. Shirahashi discloses that the dummy gate lines DGL disposed outside the outermost scanning signal line GL prevents breakage of the outermost signal lines. See abstract. It would have been obvious to one of ordinary skill in the art at the time of invention to provide a dummy line disposed along the lowermost portion of the horizontal gate line or the uppermost portion of the horizontal gate line in order to prevent breakage of the outermost signal lines.

***Allowable Subject Matter***

Claims 9-13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Y. Chung whose telephone number is (571) 272-2288. The examiner can normally be reached Monday thru Friday from 8:30 am to 5:00 pm. If successive attempts to contact the examiner are unsuccessful, the examiner's supervisor David C. Nelms can be reached at (571) 272-1787.

/David Y. Chung/

Examiner, Art Unit 2871

/David Nelms/

Supervisory Patent Examiner, Art Unit 2871